WEBVTT

NOTE duration:"00:02:43.6690000"

NOTE recognizability:0.881

NOTE language:en-us

NOTE Confidence: 0.8629012

00:00:07.060 --> 00:00:08.780 Usually you have two bones

NOTE Confidence: 0.8629012

00:00:08.780 --> 00:00:10.500 that make up the joints.

NOTE Confidence: 0.8629012

00:00:10.500 --> 00:00:12.558 So for example the knee joint.

NOTE Confidence: 0.8629012

00:00:12.560 --> 00:00:14.432 You have the femur and the

NOTE Confidence: 0.8629012

00:00:14.432 --> 00:00:16.515 tibia and the bones and the

NOTE Confidence: 0.8629012

00:00:16.515 --> 00:00:18.410 joint are lined with cartilage.

NOTE Confidence: 0.8629012

00:00:18.410 --> 00:00:20.318 That's what lets the bones glide

NOTE Confidence: 0.8629012

00:00:20.318 --> 00:00:22.383 against each other and arthritis that

NOTE Confidence: 0.8629012

00:00:22.383 --> 00:00:24.945 cartilage has become damaged or worn down.

NOTE Confidence: 0.8629012

00:00:24.950 --> 00:00:25.294 Unfortunately,

NOTE Confidence: 0.8629012

00:00:25.294 --> 00:00:28.390 we don't have a way to repair the cartilage.

NOTE Confidence: 0.8629012

00:00:28.390 --> 00:00:30.105 The cartilage has a very

NOTE Confidence: 0.8629012

00:00:30.105 --> 00:00:31.134 unique complex architecture.

NOTE Confidence: 0.8629012

00:00:31.140 --> 00:00:33.180 So when the cartilage has been

NOTE Confidence: 0.8629012

00:00:33.180 --> 00:00:34.893 severely damaged to the point

NOTE Confidence: 0.8629012

00:00:34.893 --> 00:00:36.591 that pain is causing a decrease

NOTE Confidence: 0.8629012

00:00:36.591 --> 00:00:38.709 in in a patient's activity,

NOTE Confidence: 0.8629012

00:00:38.710 --> 00:00:40.768 then the next step would be

NOTE Confidence: 0.8629012

00:00:40.768 --> 00:00:42.150 a total joint replacement.

NOTE Confidence: 0.8956745

00:00:46.130 --> 00:00:48.170 So total joint replacement is

NOTE Confidence: 0.895674499999999

00:00:48.170 --> 00:00:51.074 when we replace the surfaces where

NOTE Confidence: 0.895674499999999

00:00:51.074 --> 00:00:53.882 the cartilage has been broken down

NOTE Confidence: 0.895674499999999

00:00:53.882 --> 00:00:57.010 or worn out and we replace it with

NOTE Confidence: 0.895674499999999

00:00:57.095 --> 00:01:00.239 metal or plastic or ceramic surfaces.

NOTE Confidence: 0.895674499999999

00:01:00.240 --> 00:01:01.880 Everyone's anatomy is unique,

NOTE Confidence: 0.895674499999999

00:01:01.880 --> 00:01:05.705 so the shape of your bone is going to

NOTE Confidence: 0.895674499999999

00:01:05.705 --> 00:01:07.850 be different from everyone else's.

NOTE Confidence: 0.895674499999999

00:01:07.850 --> 00:01:11.906 So you would want to put the implants

NOTE Confidence: 0.895674499999999

00:01:11.906 --> 00:01:14.547 in specifically for you so that.

NOTE Confidence: 0.895674499999999

00:01:14.550 --> 00:01:17.598 Surgery is customized specifically for you.

NOTE Confidence: 0.895674499999999

00:01:17.600 --> 00:01:21.264 I take a high resolution CAT scan or

NOTE Confidence: 0.895674499999999

00:01:21.264 --> 00:01:25.649 MRI and I create a 3D representation of

NOTE Confidence: 0.895674499999999

00:01:25.649 --> 00:01:28.806 your joint. From that 3D representation,

NOTE Confidence: 0.895674499999999

00:01:28.806 --> 00:01:32.444 I'm able to model different implant sizes

NOTE Confidence: 0.895674499999999

00:01:32.444 --> 00:01:35.923 and positions and orientations in your knee,

NOTE Confidence: 0.895674499999999

00:01:35.930 --> 00:01:39.493 and I'm able to select the optimal

NOTE Confidence: 0.895674499999999

00:01:39.493 --> 00:01:42.550 position of those components and then

NOTE Confidence: 0.895674499999999

00:01:42.550 --> 00:01:45.350 construct 3D printed custom instruments.

NOTE Confidence: 0.895674499999999

00:01:45.350 --> 00:01:46.628 Before your joint.

NOTE Confidence: 0.88343614

00:01:51.830 --> 00:01:54.648 The way it's been done is that

NOTE Confidence: 0.88343614

00:01:54.650 --> 00:01:56.665 surgeons have used different alignment

NOTE Confidence: 0.88343614

00:01:56.665 --> 00:01:58.680 orientation guides during the surgery

NOTE Confidence: 0.88343614

00:01:58.680 --> 00:02:02.307 and we know that they're not as precise or

NOTE Confidence: 0.88343614

00:02:02.310 --> 00:02:04.325 accurate during the surgery than

NOTE Confidence: 0.88343614

00:02:04.325 --> 00:02:06.340 if you use this technology.

NOTE Confidence: 0.81532377

00:02:10.510 --> 00:02:13.760 We know that patients who have

NOTE Confidence: 0.81532377

00:02:13.760 --> 00:02:16.032 had these custom instruments.

NOTE Confidence: 0.81532377

00:02:16.040 --> 00:02:18.140 Day after surgery, say that the

NOTE Confidence: 0.81532377

00:02:18.140 --> 00:02:20.549 knee or hip feels more natural.

NOTE Confidence: 0.92253554

00:02:23.550 --> 00:02:25.350 They require less blood

NOTE Confidence: 0.92253554

00:02:25.350 --> 00:02:26.700 transfusions after surgery,

NOTE Confidence: 0.92253554

00:02:26.700 --> 00:02:28.950 that their pain is less.

NOTE Confidence: 0.92253554

00:02:28.950 --> 00:02:31.005 We know that there's fewer

NOTE Confidence: 0.92253554

00:02:31.005 --> 00:02:32.649 readmissions to the hospital

NOTE Confidence: 0.92253554

00:02:32.649 --> 00:02:34.349 using these instruments,

NOTE Confidence: 0.92253554

00:02:34.350 --> 00:02:36.600 so there are big differences

NOTE Confidence: 0.92253554

00:02:36.600 --> 00:02:38.850 in terms of patient outcomes.